THE PHONOGRAPH.

Thomas A. Edison's Wonderful Invention Examined.

GRAPHICAL RECORDS OF SOUND.

Vibrations and Their Development in Various Bodies.

MUSICAL NOTES AND NOISES.

A Mechanical Triumph of Ingenuity and Simplicity.

One of the most remarkable features of American progress as compared with that of the old nations of Europe is the extraordinary development of inventive power. The progress of invention begins with man's port of life. The flint arrow heads of the prehistoric dication of the results to special and useful purposes. was an invention of the highest importance, as it enabled the primitive hunter or warrior to strike his vica long and exhausting chare or the doubtful issue of a personal encounter. From the bow has grown thousands of inventions suited to as many special purposes. The idea embodied in it of using ealized in the 100-ton gun. The feathers on the arrow shait to regulate the flight, most certainly made the first arm of precision ever invented, finally led to the idea of rifling a gun barrel to secure the follow the development of the various rude invenis not allotted even to a lifetime. But the bare sugcient for the reader when studying the nature of the latest and perhaps the greatest triumph of the buman

Steam, electricity, chemistry, photography, telescopy and microscopy, the spectroscope and the va-rious applications of the mechanical powers, have filled the lives of the men of this century with occupations fare the human race. Compared with the conditions of life of even only one century back those of to-day draw out abundantly from all that the great treasury daily results, as they are presented to the world, only serve to show by their astounding grandeur how inexhaustible is the source and how incalculable are the possibilities with regard to what it may furnish. The object of the present article is not to deal with inntion in the abstract, but to detail the especial wonders and beautiful simplicity of a recent discovery which ranks with the greatest yet made.

Efforts have been made, and with some success, to record graphically the actual vibrations of the air produced by the more or less rapid succession of means of very sensitive vibratory disphragms it has been possible to register on prepared surfaces the movements of the point of a flue needle or other indicator attached to the centre of the vibrating surface, and which, of course, are governed by the vibrations, To make the matter clear to the reader, it may be pecessary to state that a vibration is a regular dison around or across the centres of their positions of rest. These motions do not necessarily involve

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impair in the least the distinctness of the words spoken, he can understand in some degree the capacity of the phonescraph.

THE QUALITY OF THE SOUNDS.

Although the quality of the sound as reproduced is not altered its volume is necessarily less than that of the original. The notes of the brigher pitch are given out with more distinctness as a rule than those of the lower. Waisting, no matter now rapid the succession of soles, is perfectly reproduced, and even the nondescript sound of a low cough or sneeze is repeated with startling accuracy. If the operator commonces a senténce in a high pitched volce, and graduality modulates the tones down to a low mattering almost a whisper, the phonograph repeats, marking every change in the tone, and without any loss of distinctness. Singing is reproduced accurately as to every note, distinctly as to the pronunciation of every word, but with an approach to reediness. This loss of volume observeable in the first and necessarily experimental phonographs is due to the fact that the soft metallic surface (in foil) that is punctured does not offer the resistance to the retracting of the stylus or needle of the damptragm sufficient to set up in the latter vibrations as energetic as those seveloped by the original sound. Hence very loud sounds will be reproduced by the phonograph with a loss of volume, but soft low tones return from the instrument with a scarcely perceptible loss. Mr. Edison is now engaged on a series of experiments with a view to the reinforcement of sounds by means of organ pipes. There is no reason to doubt his success, and the world may look for some very astounding results within a little time. As he proposes to control the pussage of air through pipes by means of the vibrations of the phonograph pipes by means of the vibrations of the discovery of electricity gave the world first a curiously, then a subject for careful scientific inventing time, the magnetic coil and of the belephone. The latter most certainly led to the phonograph perfected the telephone

PROFESSOR ADLER'S LECTURE.

SACRIFICE ALONE THE GREAT COST OF RELI-

On this day of Easter songs, said Professor Folix Auler, at Standard Hall, yesterday, when so many persons giorify an event by which they think that death has been overcome, a cry of infinite pain and pathos breaks through the pains of rejoicings. The passion week, with its somure tones, still reverberates through the churches and reminds all who have ears thing that is great and good. It is seen in the seeds that grow, in the fierce struggle for existence, and grates harshiy on those who so anxiously look for harmony everywhere. Sacrifice also is the great price mankind must pay for the great werey vituation of the dishragm ducto had a weery vituation of the them outhpiece. A pair funnel is now attached to the mouthpiece and over the simplification of the condition of the same of content and the phonograph repeats in a close time of the purpose of concentrating the sound, the cylinder is revolved as before, and the phonograph repeats in a close time of the inition sheet. The astonished listeners hear issuing from the instrument the song "John Brown's body lies mouldering in the grave," &c., with the reinforced chorus notes of "Glory," jory, halleligish," &c., just as they have been sung into the mouthpiece. The nutreance of a forming listform speech is given with every change of intonation. The emphases are marked and the patient, and thereby the most minute impressions of the emphases are marked and the patient in the causes of the tinity of disphargm and thereby the most minute impressions of the pointer attached to to on the tin foll wrapper of the cylinder is reproduced, no matter how that sound may be in combination with others.

If a cause can be reproduced by the astency of an effect it is done on the phonograph. To reproduce the sounds that caused the vibrations of the disphargm and the penturing of the tinfol wrapper of the revolving cylinder is reproduced, no matter how that sound the pointer attached to to on the time of the tinfol wrapper of the revolving cylinder is revolved causes and reprovoiving cylinder is revolved causes of the original sound. Hence, the conditions of atmospheric vibrations of the same series of vibrations, and consecutively simple the cylinder is revolved causes of the cylinder is revolved causes the eighbragm and the patient in the cylinder is revolved causes of the cylinder is revolved causes the eighbragm to vibrate and mark the tinfol the produced to wrestle with some scientific difficulty, and they do not perceive how entirely devoid of intricacy are the operations of causes and effect brought to their accordance of the produced of the produced of the cause o boon of emancipation. It is no doubt much easier to accept things as they are, but the

by the Rev. Dr. I. M. Wise, of Cleciment, some years since. It has become an established fact in the South and West, about ninety congregations having been organized pursuant to its provisions, but with only the above three exceptions the Eastern congregations have as yet not joined the union. The Western congregations in the union have a college for the education of ministers established in Cinembatt. They have also published a cheap edition of the Bible, have subsidized several school books and offered prizes for others. The idea among the Eastern congregations is to join the union upon a somewhat independent basis, to have a college established in the city of New York, and to enjoy other privileges which are sow possessed by the Western synapogues. This union movement will have the effect of doing away with the Board of Delegates, an institution that was formerly of some power, but has laterly fallen in to comparative insignificance, only a very few congregations being connected with it, and those only in the East.

WILLIAM M. TWEED.

LESSONS FOR YOUNG MEN FROM HIS LIFE AND DEATH-SERMON BY REV. WILLIAM F. HAT-

Rev. William F. Hatfield, pastor of the Eighteenth Street Mothodist Episcopal Church, delivered a ser-mon last night on the me and death of William M. Tweed. Interest was added to the sermon from the fact that the reverend speaker had been personally acquainted with the deceased. The texts of the ser mon were from IL Samuel, t., 19-"How are the mighty fallen!" and I. Corinthians, x., 12-"Let him that thinketh he standeth take heed lest he

I some not here to-pight, said Mr. Hatfleid, to cas aspersions upon the memory of the dead, but I owe it to the living, and especially to young men, that the courses which have been pursued by others, and For one commencing life with little or no education— without the aid of parents or friends and relying upon himself chiefly-it must be acknowledged that Mr Tweed was a man of more than ordinary ability. As health and power, surrounded by his wife and cont-dren, and contrast his condition then with that in Luciow Street Jail, I feet inclined rather to pity than condemn him. His life and death teach that sin Ludiow Street Jail, I feet inclined rather to pily than condemn him. His life and death teach that sin sooner or latter will be punished. There is an avenuer of wrong, a Nemens, that never slumpers, and whom men least suspect it this avenger is at their door. Was there ever a man who so openly defied law? When the people companied of exercitant taxes and the squandering of the partie fluids he calmiy asked, "What are you going to do about it?" Those whom he helped the most were the first to forsake him. When the Committee of Seventy entered upon the work of invasingation the power of the Ring was virtually broken, and he who was its chief then faintly saw its doom and his own written on the walls of Tammany Hall. We also loarn from his history that an inordinate ambition for wealth and power loads to disgrate and ruin. Mr. Tweed early cherished the idea of gaining power, but his ambition led him away from that path of moral rectitude, to depart from which is sure to bring shame and ruin to a king as to a subject, to a statesman as to the humblest poasant. The way of the transgressor is hard. If ever there was a man who suffered for wrongdoing that man was William M. Tweed. Step by step he was ouware fed, surrounded by those who with him were equally culpable. I warn all men to beware of the first act that has the appearance of evil. Tweed saw his mistake in later years, and I have no doubt would have rectified it had it been in his power.

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HIS DESERTION.

Perhaps the saddest scene in the history of Mr. Fweed was that of his loneliness in consequence of his desertion by his friends during the last days of his life. One would have supposed that Mr. Sweedy, who was made comfortably well off, and others of his associates whom I need not mention, would at least have brought a bouquet of flowers every day to regale their old friend and to assure him of their friendship of his pretended admirers and to seek for friends clawhiers. Generous traits of character are not suificient to keep a man in the midst of powerful temptations. Mr. Tweed had traits of character which were worthy of admiration. It was my lot to know him personally. Ten years ago, when living in spiender at his beautiful country seat in Councetteut, I often saw and conversed with him. I know him to be a friend to the poor. He gave liberally to the poor in the town where he lived, and at one time, I am told, he distributed \$50,000 among the poor in this city. He chartered a steamboat and gave the boys on Empdain's Island an excursion to his beautiful nome and leasted them on their arrival as they had never been leasted them on their arrival as they had never been leasted theore. "Yes," you will say, "and pard for it out of the city treasury." But that he did this shows his kindness of neart and that he was not forgetful of those who were deprived of the conferts and desied many of the pleasures enjoyed by others. He was liberal in his donations to the Church, and, though not an attendant upon religious worship, he set a good example by renting pews for his taminy and lor his irrends who might wish to attend. You will say the was for political perposes. But have there not been men in this city worth more than he was who disposed of but little to the poor and when dying gave the bulk of thoir fortunes to other objects than charity?

This history is a warning to all men who occupy positions of trust and influence. None are in so much danger of failing as those who fill responsible positions in Unique or State. Learn, young men, and all who fill stations of honor and trust, never for the sake of gain and worldly emoluments to sacrifice principle for individual or party interests, or to violate the teachi gs of conscience and the Bible to secure the lading and transient glories of the world.

MRS. TILTON'S CONFESSION.

At the American Free Church, University Building,

INSANE PATIENTS.

Treatment in the Blackwell's Island Female Asylum.

ALLEGED ABUSES.

Charges of Cruel Practices by the Incompetent Nurses.

In a recent article published in the HERALD attention was directed to the condition and manage-Blackwell's Island, one of the institutions under the control of the Department of Charities and Correction. In this asylum, the largest in the State, the dreadful effects of overcrowding were pointed out and the many grave evils resulting from such a condition referred to. One of the principal difficuities of arriving at a correct knowledge of the actual and everyday state of institutions for the insape is that as a general rule the officers, from the highest official down to the nelpers, are directly interested in keeping from the public any information that would in any way reflect on the management. It is to the disinterested visitors then, who, having nothing in view but the welfare of the unfortunate inmates of these places, that the public must look to for exposing the abuses and disorders that undoub

The reporter of the HERALD in conversation with one of the lady visitors of the institutions on Black-well's Island, obtained this statement of things that occurred to her knowledge and in her presence as well as of other lady visitors:- "While visiting one of the main halls at the Female Lunatic Asylum we heard a loud noise in one of the rooms, and in a moment after one of the unfortunate lunatics suddenly ran out of the room screaming, entirely naked and was chased by the nurses the entire length of the ward and finally captured and taken into one of the rooms. On our inquiring into the case we found that the nurses were douching this insane woman with cold water. This was during the winter months, and the weather was very coid."

This is the statement of a lady who has for years been a constant visitor to the island, and who has la bored very hard to improve the condition of the inmotes of all the institutions. This lady also strongly complained of another system that has been and was last winter in force in this asylum. She states that "during the coldest weather, and when the ground is covered with snow, the insane women confined in the Retreat, which is the most distant building from the cooking rooms, are obliged to take food to and from the two buildings, and that these women had no other covering on than a thin 'uniform' dress, and were without stockings or underclothing. Such customs and utter neglect like this have sent a large number of these unfortunates to their graves."

In a paper handed to the reporter, entitled, "A Communication to the Mayor of New York in Regard to the Official Charities of the City," made by the Cummissioners of the State Board of Charities, the following extracts are given from the report of the Resident Physician of the asyium for 1877:—

Resident Physician of the asytum for 1877.—

The institution is still much below the average standard of excellence in the provision made for the care and curry of its unfortunate immates ** 2 In the 'Lodge,' during the nights of the lat, toth and 35th of November, which have seen selected at random for illustration, there was only a single half hour of quietude within the building. At all other hours noise smough was made by one or more patients to disturb the rest of the others. It is unnecessary in this connection to expatiate on the evils attending this state of sifairs. It is enough to any that it would be inhamming to crowd persons who are not deprived of the use of reason together in this wholesals manner. And yet the helpiese chances for recovery are of the control of the second together in this wholesals manner, the control of the control o

would surely ensue. Even with such vigilance a fatal optomic is at any time liano to eccur.

The above extract taken from one of the reports of the department shows that the terrible evils existing at present are not unknown to the authorities. The regular and official visitors of the different societies charged with inspecting this as well as the other institutions under the charge of the department complain that every effort on their part has proved fruitless to remove or even lessen the abuses continually taking place under their eyes.

The following account of a case of crucity and criminal abuse of one of the wretched patients in this matitation is from the lips of a person who has been for many years and is at present a regular visitor to the Fennie Lunnic Asylum—"Eighteen months ago." says the informant, "a woman in half No. 3 was considered by the physicians well enough to be discharged from the quarters in the main building and pisced in one of the pavisions. She was ordered to go there by one of the nurses on duty, and was forced out of her room without all her clothes. The woman to pursue the country and was the referred to go the energy of the wanted the release and the nurses of the wanted the release and the nurses of the wanted their clothes.

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the people selected have by provious habits and training rendered themselves totally unit for attendants on the mane, and that as a proof of such statements hearify all the nurses who have been forced to resign of who have been made to the first rule, for orankehness, and that it was a well known that it was a well known that it was a well known fact that women who were addicted to drink were allowed to hold their places after evidences of their misconduct had been made known to those in attinority. Repeated complaints have been made by the official visitors to the asylum in regard to the inferior quality of the attendants employed. One visitor, when spoken to on this su ject, said that it was an adoubtedly trac that neany of the attendants employed, not alone in the Female Lunatic Asylum, but also in the other charitable institutions, drink, and that the unfortunale patients under their care suffer severely in consequence of such habits, but that this was not the worst feature of some of the attendants. "If know," remarked the party spoken to, "that nurses have been in the asylum who were unable to read or write, and these women were placed over the sick and gave them medicine, sithough they could not read the directions and had to trust to their memories. One attendant, six months ago, was being taught to read by a patient under ner charge." As long as political influence has any power to effect the appointment of attendants for the insane so long will a very interior grade find positions, for the very fact that such a class is employed will deter many respectable and deserving women from looking for such pokitions. In the Insane Asylum for males on Ward's Island according to the annual report of the Medical superlithenein. January, 1876, axiy attendant relified from the institution, twenty-one resigned and their-y-sight were dismissed; of this number arxited were dismissed, for intoxication and five for stri

striking patients.

Almost in every instance the efforts of the reporter of the Heralin to obtain information in relation to the abuses in this institution from disinterested parties was met with silence, even when an acknowledgment was made of the truth of the complaints. In no better way can this point be illustrated than by recting the reply in response to such an application to a religious society in reference to their representative on the island:—

U. L. W., Superintendent, &c.

There is an instance in which, from the writer's own
knowledge, a religious society is no a position to expose
and possibly remety the wils complained of on the
island; yet from some motive, which may be that
of lear or interest, the officials of the society ratuse
to afford any information that could be used to the
advantage of the poor issane. This is faut a solitary
instance out of many where the representatives of
religious bodies, claiming that they have an interest
only in the wolfare of the soul, permit the body to be
subjected to the most cruel tortures.

THE COLD WATER ARMY.

GREAT GATHERING AT COOPER INSTITUTE TO HEAR THE TEMPERANCE EVANGELIST, FRAN-CIS MURPHY.

The large ball of Cooper Institute was filled to overflowing yesterday afternoon to bear an adoress from Francis Murphy, the successful temperance evange ist. The meeting was beld under the auspices of the American Temperance Union and President Mundy occupied the chair. The platform was crowded with nent clergymen and others distinguished for their temperance principles. The music was unusually effective, the chair being largely augmented and the audience joining more heartily in the singing. The was the most exciting that has ever be-fore been witnessed at a temperance meeting call to come up and sign the pledge and take the blue ribbon, many of them respectable young ladies. Gray-haired mon were also to be seen among the number anxious to grasp Murphy's bands, while he near him. His earnest exhortations, "Come on now, come on now, friend -- come and sign the p'edge and take a blue ribbon !" were immediately responded to by a mass that soon filled the area in front of the platform. "Sing everybody," cried Murphy, in the midst of the excitement, and at the summons hundreds of voices in the rear and body of the hall joined dreds of voices in the rear and body of the ball joined with the choir and auxiliaries in singing the most popular Moody and Sankey hymns and well known temperance songs. The officers of the Union bustled about with piedges and blue ribbons, ejacuisaing, "More piedges," "More ribbons," "Here's a lady who will the on a ribbon for you," &c. Nearly the whole audience were on the ribest. Invited guests on the platform crowded toward the scene of commotion, and, partaking of the magnetism of the occasion, called upon the brethren to come up and sign. Several ladies officiated in the labor by adorang young men with the badge of temperance, The scene was at once unique and sensational. Three thousand yards of bine ribbon were distributed, and promoty more than half that number of people signed the pledge.

MR. MURPHY'S REMARES.

probably more than half that number of people signed the pladge.

Mr. Murphy commenced by saying that sanguage would very leably express the grantade he felt in his heart at being among them to-day and upon being accordinally welcomed. He had heard of the temperance work in this, the London of America, and he thanked God forgying him eyes to enable him to see it. "We have," to sait, "no quarrel with you who drink a little, nor with you who sell a little; but one thing is certain if men would drink no liquor there would be no liquor to sell. Mr. Murphy then gave an account of his early life; said he was born in Wexford, Ireland, in 1836, described his numble home, his departure for American when sixteen years old, the prayers and benediction of his mother, his arrival in New York, his temptation to drink on the American plan, and after various ups and downs tound himself indicate of the Handley Husse in Portland. Here American when sixteen years old, the prayers and benediction of his mother, his arrival in New York, his temptation to drink on the American plan, and alter various ups and downs found himself landword of the Bradley House in Portland. Here whiskey got the best of the him, and after a short season of prosperity he found himself bereit of property, family and friends and the inmate of a jail. He was in this condition when a band of prospecific was in this condition when a band of prospecific visited the jail and engaged in prayer in the midst of the inmates. One good old gentleman, Captain Cyrus Stortevant, took him kindly by the hand, breathed words of hope and salvation in his ear and he emerged from his prison cell a reformed man. The speaker, with considerable emotion, which had a visible effect upon the audience, then recited some of the acts he had committed while under the influence of the demon—rum; touchingly described the scene at the bedside of his dying wife; prayed his hearers not to lead their children into temptation by having intoxicating liquors at their tails, which was so unfortunately the habit in the Old Country, and through which so many thousands had been led to fill drunkards' graves. "Teach your children," he said, "total abstinence from this great evil. It will pay you to do it."

An effective part of Mr. Murphy's address was where he tigowed the floods and serpents of rum to come forth "and I will trample (stamp), trample (stamp), trample, trample (stamp), trample, trample (stamp), trample or the hoad of a serpents, trample you to do it."

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